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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/654,760	09/04/2003	Ching-Shan Lu	252011-1630	6914
47390	7590	12/22/2004	EXAMINER	
THOMAS, KAYDEN, HOSTEMEYER & RISLEY LLP 100 GALLERIA PARKWAY SUITE 1750 ATLANTA, GA 30339			PRETLOW, DEMETRIUS R	
			ART UNIT	PAPER NUMBER
			2863	

DATE MAILED: 12/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/654,760	Applicant(s) LU, CHING-SHAN	
	Examiner Demetrius R. Pretlow	Art Unit 2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the ***semiconductor furnace equipment, and a processed material identity, a wafer count, a process program identity, a chamber identity, an operator identity, a boat map, a step identity, a zone temperature, a pressure, a mass flow controller, a gas flow, a valve opening angle, or a leakage pressure.*** must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will

be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3,5-7,9-11,13-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Li (US 5,862,054). Li teach equipment (11) to transfer status information thereof at preset intervals; Note Li column 3, lines 62-67 and claim 10, lines 3-5 and also Note Figure 1. Li teach a detection/diagnosis unit (10) coupled to the equipment to receive the status information, check whether the status information conforms to a process control standard, and if not, determine that the equipment has a malfunction. Note column 4, lines 19-31.

In reference to claim 2, Li teach status information database for storing the status information of the equipment. Note claim 9.

In reference to claim 3, Li teach wherein the detection/diagnosis unit further generates a notification if the equipment malfunctions. Note Li column 4, lines 22-31.

In reference to claim 5, Li teach the detection/diagnosis unit further stops operation of the equipment if the equipment malfunctions. Note column 4, lines 22-25.

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In reference to claim 6, Li teach the status information comprises a parameter value corresponding to at least a process parameter. Note Li column 4, lines 1-18.

In reference to claim 7, Li does not explicitly teach a semiconductor furnace however Li does teach wafer fabrication process and machinery, thus including a semiconductor furnace or heating chamber. Semiconductor furnace or heating chambers are inherent to every wafer fabrication process.

In reference to claim 9, Li teach transferring status information of equipment at preset intervals to a detection/diagnosis unit; Note Li column 3, lines 62-67 and claim 10, lines 3-5 and also Note Figure 1. and Li teach checking whether the status information conforms to a process control standard, and if not, determining that the equipment has a malfunction. Note column 4, lines 19-31.

In reference to claim 10, Li teach storing the status information of the equipment. Note claim 9.

In reference to claim 11, Li teach generating a notification if the equipment malfunctions. Note Li column 4, lines 22-31.

In reference to claim 13, Li teach further stopping operation of the equipment if the equipment malfunctions. Note column 4, lines 22-25.

In reference to claim 14, Li teach the status information comprises a parameter value corresponding to at least a process parameter. Note Li column 4, lines 1-18.

In reference to claim 15, Li does not explicitly teach a semiconductor furnace however Li does teach wafer fabrication process and machinery, thus including a

semiconductor furnace or heating chamber. Semiconductor furnace or heating chambers are inherent to every wafer fabrication process.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li (US 5,862,054) in view of Schleiss et al. (US 6,633,782 B1). Li teach the all the claim limitations above.

Li does not teach diagnostic database from which a recovery measure for the malfunction is retrieved by the detection/diagnosis unit if the equipment malfunctions.

Schleiss et al. teach diagnostic database from which a recovery measure for the malfunction is retrieved by the detection/diagnosis unit if the equipment malfunctions.

Note column 3, lines 56-67.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Li to include the teaching of Schleiss et al. because it would provide remedial measures to the source of the problem. Note Schleiss et al. column 3, lines 63-67

In reference to claim 12, Li does not teach retrieving a recovery measure for the malfunction by the detection/diagnosis unit if the equipment malfunctions. Note column 3, lines 56-67.

Schleiss et al. teach retrieving a recovery measure for the malfunction by the detection/diagnosis unit if the equipment malfunctions. Note column 3, lines 56-67.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Li to include the teaching of Schleiss et al. because it would provide remedial measures to the source of the problem. Note Schleiss et al. column 3, lines 63-67

Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of Toprac et al. (US 6,785,585 B1). Li teach the limitations above.

Li does not teach the process parameter is pressure.

Toprac et al. teach the process parameter is pressure. Note Toprac et al. column 5, lines 4-5.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Li to include the teaching of Toprac et al. because it would reduce post etch thickness variations. Note Toprac et al. column 5, lines 5-6.

In reference to claim 16, Li does not teach the process parameter is pressure.

Toprac et al. teach the process parameter is pressure. Note Toprac et al. column 5, lines 4-5.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the invention of Li to include the teaching of Toprac et al. because it would reduce post etch thickness variations. Note Toprac et al. column 5, lines 5-6.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Demetrius R. Pretlow whose telephone number is (703) 272-2278. The examiner can normally be reached on 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Demetrius R. Pretlow
Patent Examiner

Demetrius Pretlow 12/13/09

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